

REMARKS

Changes to Claims

Claims 1, 42, 55, and 57-60 have been amended. Claims 62-65 are herein withdrawn, per the examiner's determination of those claims being drawn to a non-elected species.

Drawings

The Examiner objected to figure 16, based upon MPEP § 608.02(g), because it should have been designated with a legend indicating it was "prior art." The drawing sheet containing Figure 16 has been appropriately revised.

Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claims 57-61 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, because the claims contain "subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." The Examiner maintained the rejection, stating that the specification did not teach the "cantilevered rod," and it was therefore considered to be new matter. The Applicant has therefore amended claim 57 herein to replace the usage of "cantilevered rod" with "shaft."

Claim rejections - 35 U.S.C. § 103

The Examiner has rejected the claims under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,897,626 to Bratby-Carey, in view of U.S. Patent No. 2,663,891 to

Hanyron and U.S. Patent No. 6,276,856 to Pieper. The Examiner's continued rejection of the claims over Bratby-Carey, in view of Hanyron and Pieper, is respectfully traversed.

The Examiner stated that "the added language of 'said first roller ball having a surface roughness calibrated for optimal delivery of said product, said surface roughness being determined according to said product's viscosity' is considered as mere manufacturing calculation." Furthermore, the Examiner stated "every single, workable, roller ball applicator would obviously have a roller ball having a surface roughness calibrated for optimal delivery of the product since they are manufactured to dispense the liquid product of a device wherein the liquid would obviously have a viscosity." The Applicant respectfully disagrees for several reasons.

First, 35 U.S.C. § 112 requires, inter alia, that an applicant "shall set forth the best mode contemplated by the inventor of carrying out his invention," and under 35 U.S.C. § 282, second paragraph, an issued patent is presumed valid even with regard to compliance as to "any requirement of sections 112 or 251 of this title." Therefore, the fact that none of the prior art references even considered the viscosity of the product in relation to the means being utilized for dispensing of the product, more properly leads to the conclusion that the prior art inventors had not discovered, as did Applicant, the advantageous nature and significant improvement offered by calibrating the cosmetic substance's viscosity with the roller ball surface roughness to optimize dispensing of such products. This is apparent from a close reading of the prior art disclosures.

It is true, as pointed out by the Examiner, that every substance dispensed will have a determinable viscosity, but so too will it have other distinguishing characteristics or qualities, including its density, phase transformation temperatures (boiling/freezing points), chemical

make-up, etc. The present disclosure is patentably distinguishable because the Applicant discovered a way to utilize a particular characteristic of multiple different products, in conjunction with a varying structural arrangement in order to significantly improve upon the devices in the prior art.

The only mention in any of the prior art patents of “viscosity” is found within U.S. Patent No. 6,276,856 to Pieper, at column 1, lines 34-36. In creating a wiper for dispensing only a liquid product, Pieper disclosed in the background of the invention that prior art lipstick had used pigments that “are adhered to the lips by a high viscosity polymer film that is free of waxes and oils.” Nowhere is there any disclosure or suggestion to make use of viscosity in relation to dispensing being accomplished through use of a roller ball, nor to the advantageous results that may be obtained in dispensing a variety of different products by calibrating the viscosity of each product, as part of a multi-product dispenser, to be optimal according to the surface roughness of a respective, customized roller ball.

In U.S. Patent No. 2,663,891 to Hanryon, where a roller ball is actually used to dispense a product, the liquid product is directed onto the roller ball therein using a wick 14, which teaches away from Applicant’s use of the roller ball being specifically tailored to directly engage and optimally acquire a portion of the particular cosmetic substance. Hanryon affirmatively states, at column 1, lines 30-34, that it “is a specific object of the invention to provide means in a touch-stick of the type just described whereby the device is at all times ready to operate successfully and regardless of the position in which it is held.” Hanryon’s only reference to the roller ball in the ‘891 patent is to state, at column 2, lines 12-13, that “the ball 7 is preferably formed of a suitable plastic.” Conversely, Hanryon devotes nearly the entire rest of the disclosure to details of the plunger 11 pressing on the ball, and the ball contacting the wick, to enable the invention as

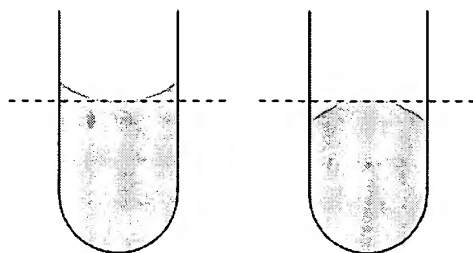
to its second objective, stated at column 1, lines 36-40, that “a further specific object is to assure that the device at any time be positively successfully operated under a very slight pressure of the ball-end of the device against the skin.” Hanryon not only does not consider that the liquids capable of being dispensed by his invention might be of a slightly varying viscosity, it does not address, and is furthermore not even capable of accommodating, large variations in the consistency of the substance dispensed, as shown by a high viscosity substance like the powers/creams dispensable using Applicant’s invention, as they could not be “wicked” up to the ball.

Therefore, Applicant believes that the Examiner’s assertion regarding obviousness, that “every single, workable, roller ball applicator would obviously have a roller ball having a surface roughness calibrated for optimal delivery of the product since they are manufactured to dispense the liquid product of a device wherein the liquid would obviously have a viscosity,” is shown by the above discussion to be respectfully traversed.

Second, there are a number of different modes and considerations applicable in regard to enhancing the “wetting” of a substance onto an object such as a roller ball. For example, where a liquid perfume is being dispensed, the hydrophobic nature of the roller ball might also be considered. Hydrophobicity is the property of being water-repellent, of tending to repel and not absorb water. Although seemingly counterintuitive, blades of grass, leaves and other plants may be hydrophobic, tending to allow dew drops to form thereon (see e.g., “The Role of Hydrophobic Substances in Leaves in Adaptation of Plants to Periodic Submersion by Tidal Water in a Mangrove Ecosystem,” by Suniti Misra, A. Choudhury, Amitabha Ghosh, and J. Dutta, *Journal of Ecology* (1984), 72, 621-625, available at: <http://www.jstor.org/pss/2260071>). However, hydrophobic molecules generally tend to include greasy substances, such as alkanes (also known

as paraffins or saturated hydrocarbons), oils, and fats. Although perfume may vary in composition for various manufacturers and brands, the basic formula comprises 15% to 30% essential oil, 70% to 80% pure grain alcohol, and 5% distilled water. It is possible to limit the usable cosmetic products to those comprising hydrophobic-free perfume ingredients (see e.g., U.S. Patent Application No. 2007/0281880 to Morgan), to eliminate the roller ball's hydrophobicity as a consideration in the invention, however, that would be unnecessarily limiting. Therefore, hydrophobicity could have been another characteristic of the roller-ball that might have been utilized to improve its wetting nature with dispensed cosmetic substances.

Another consideration in the nature of the roller ball's ability to be wetted by a cosmetic substance involves a more broad based relationship between the roller ball and cosmetic substance than mere hydrophobicity, and concerns the overall molecular attraction between the two, which may result in cohesion or adhesion therebetween. The most readily demonstrable example of such molecular interaction is familiar to many as the meniscus (curve in the upper surface of a standing body of liquid) formed relative to the surface of a container. It may be concave (below left) or convex (below right):



A convex meniscus is formed when the molecules have a stronger attraction to each other rather than to the container, resulting in cohesion. A concave meniscus is formed when the molecules have a stronger attraction to the container, resulting in adhesion. Calibration of the roller ball

according to these tendencies may also affect the nature of the roller ball being able to adequately accommodate varying viscosity cosmetic substances.

Other considerations could have included porosity of the roller ball- being the measure of the void spaces in the ball's material, which is denoted by units ranging between zero and one, to represent the fraction of the volume of voids over the total volume of the material. A means of varying temperature and pressure could also have been a factor in arriving at a roller ball to optimally accommodate various viscosity cosmetic substances. Hanryon disclosed such an advantageous pressure consideration, in stating at column 2, lines 44-47, that "it is necessary that atmospheric pressure be maintained within the container."

Despite all these other possible considerations, Applicant discovered and disclosed the more advantageous and elegant means of accommodating differing substances through the calibration of the ball's surface roughness with the cosmetic substance's viscosity. This requires that the Applicant discover the optimal surface roughness for the roller ball for a given viscosity of cosmetic substance sought to be dispensed, without knowing a workable range, and then selecting a suitable roller ball material to produce appropriate wetting and dispensing therefrom upon contact. Since it appears, based upon the Examiner's statements, that one may read the claims as considering that only a simple calculation is needed, Applicant has herein amended that particular language in claims 1, 42, and 55, from:

...and said first roller ball having a surface roughness calibrated for optimal delivery of said product, said surface roughness *being determined according to* said product's viscosity...

to the limitation below, to eliminate the italicized language, and to add the underlined language:

...and said first roller ball having a surface roughness calibrated for optimal delivery of said product, said surface roughness of said roller ball being selected to be within a range of a smooth to slightly rough surface roughness depending upon said product's

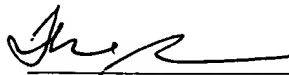
viscosity...

Therefore, Applicant believes that the Examiner's assertion regarding obviousness, that "the added language of 'said first roller ball having a surface roughness calibrated for optimal delivery of said product, said surface roughness being determined according to said product's viscosity' is considered to be as mere manufacturing calculation," is shown by the above discussion to be respectfully traversed. As previously stated, the present disclosure is patentably distinguishable because the Applicant discovered a way to utilize a particular characteristic of multiple different products, in conjunction with a varying structural arrangement, in order to significantly improve upon the devices in the prior art.

CONCLUSION

In view of the foregoing amendments and remarks, favorable consideration of the claims and allowance of the application are respectfully solicited.

Respectfully submitted,



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